

APPENDIX B

1. ES&H BUDGET PLAN AND RISK MANAGEMENT SUMMARY

1.1 Introduction

The FY03 ES&H Management Plan was prepared in accordance with guidance from DOE-EH, -SC, and -CR as it appeared to apply to single-purpose accelerator laboratories. The process combined top-down guidance from the Department of Energy with bottom-up analysis and decision making by Fermilab ES&H professionals and line managers. This risk-based, resource-constrained management process is used by Fermilab to optimize available resources to manage ES&H risks. Using this approach, Laboratory management was able to determine that sufficient dollars are available under the current funding scenario to address all significant ES&H issues.

There are a total of eight ES&H ADSs associated with this plan: one core, six compliance, and one improvement. The seven compliance/improvement ADSs included in this plan address a total of 418 risk points. About 60% of this risk is associated with environmental activities, while balance is associated with safety & health issues. No new ADSs have been added this year.

Two of the three environmental ADSs address water compliance issues: A97D0002 (Environmental restoration activities) and A93D0086 (Monitoring well network). A97D0002 involves investigation and/or remediation of soil contamination that presents a potential source of water contamination. The single improvement ADS, A98D0007 (Stored material, ID, evaluation and clean out), deals with the long-term issue of obsolete equipment and materials that possess hazardous properties.

Beginning in FY98, the funding source for Fermilab's waste management activities was transferred from EM to SC (formerly ER). This is a year earlier than most of the DOE complex and stemmed from the Lab's designation as a pilot. Waste management activities include routine waste collection, storage, and disposal as well as the evaluation and clean up of contaminated soil around the site. This funding contributes eight FTEs and about \$1.7M per year to plan costs (excluding overhead).

It was not necessary to modify the risk scores from last year since the risk factors associated with the open ADSs are essentially unchanged. The risk points for safety & health are primarily tied to industrial safety. The most significant such activity is ADS A93D0004 (Beam enclosure emergency lighting). This project

includes the rewiring of emergency lights onto lighting circuits in beam enclosure areas. Lower risk safety & health issues are being addressed through A94D0019 (Beams Division electrical compliance), A98D0002 (Personnel access safety upgrades), and AA0D0002 (Shield block storage building).

1.2 FY01 Commitments

All of Fermilab's ADSs are funded in FY01, except for A98D0002 (Personnel access safety upgrades). However, work will be taking place as part of ADS A97D0001 (Core activities); the Beams Division ES&H Department will take a closer look at safety/compliance needs for the hatches and develop a cost estimate/implementation plan. Below is the currently anticipated completion schedule for all of Fermilab's compliance/improvement ADSs:

FY01 - A93D0086 (Monitoring well network)
FY01 - AA0D0002 (Shield block storage building)
FY02 - A97D0002 (Environmental remediation activities)
FY04 - A98D0002 (Personnel access safety upgrades)
FY08 - A93D0004 (Beam enclosure emergency lighting)
FY08 - A94D0019 (Beams Division electrical compliance)
FY08 - A98D0007 (Stored material, ID, evaluation and clean out)

For planning purposes, ADSs A93D0004 (Beam enclosure emergency lighting), A94D0019 (Beams Division electrical compliance), and A98D0007 (Stored material, ID, evaluation and clean out) have been assigned completion dates in FY08. These are long-term projects that are dependent on operating schedule and/or funding availability, and may actually be completed before or after FY08.

Fermilab plans to spend \$11.9M on ES&H in FY01 of which \$10.8M is for core activities and \$1.1M is for compliance/improvement activities.

Fermilab has no significant ES&H risks that will not be adequately addressed at the requested budget level. In particular, there are no unfunded or underfunded activities that are intended to address emerging issues or activities that represent good investments. If additional funds were made available in FY01, it might be possible to accelerate the schedule for some activities; the most likely candidates would be ADS A98D0002 (Personnel access safety upgrades), A93D0004 (Beam enclosure emergency lighting), or A94D0019 (Beams Division electrical compliance).

1.3 FY02 Plan

At the start of FY02 five of the current seven compliance/improvement ADSs are expected to remain open. The most important of these are A93D0086 (Monitoring well network), A97D0002 (Environmental remediation activities), and A94D0004 (Beam enclosure emergency lighting).

ADSs A93D0086 (Monitoring well network) and AA0D0002 (Shield block storage building) are expected to be complete in FY01. Work on Fermilab's single improvement ADS, A98D0007 (Stored material ID, evaluation, and clean out) will have begun in that year, as well. ADS A97D0002 (Environmental remediation activities) is currently scheduled for completion by the end of FY02.

Fermilab anticipates no significant ES&H risks that will not be adequately addressed at the requested budget level. In particular, there are no unfunded or underfunded activities that are intended to address emerging issues or activities that represent good investments. If additional funds were made available in FY01, it might be possible to accelerate the schedule of some activities.

1.4 Skill Mix

Below is a facility-wide summary of FTE requirements for FY01 through FY03, broken down into functional areas. No ES&H staffing changes are currently anticipated over this period.

	FTEs
SAFETY & HEALTH FUNCTIONAL AREAS	
Emergency Preparedness (EP)	1.55
Fire Protection (FP)	19.91
Industrial Hygiene (IH)	3.75
Industrial Safety (IS)	11.65
Occupational Medical Services (MS)	8.95
Radiation Protection (RP)	29.05
Transportation Safety (TS)	0.00
Management and Oversight (MO)	18.74
ENVIRONMENTAL FUNCTIONAL AREAS	
Protection of Air Quality (CA)	1.21
Protection of Water Quality (CW)	4.23
Environmental Restoration (ER)	0.40
Control of Toxic Substances (CS)	0.36
Pollution Prevention and Waste Min (PP)	0.97
Waste management (WM)	8.00
Management, Oversight and Reporting (MR)	6.64

ES&H TOTAL

115.40

1.5 Budget Analysis

This plan assumes that the mission of Fermilab will not change. Current information on funding for the Laboratory indicates that a flat funding profile, without inflationary increases, should be anticipated. Fermilab's projected total operating dollar budget from High Energy Physics (HEP) funds for FY01 through FY08 based on the Congressional Budget Request and the guidance in the Unified Field Budget Call is as follows:

FY	01	02	03	04	05	06	07	08
OE (\$M)	277	303	330	343	357	371	386	401

Estimated costs for core activities have been developed based on input from line and budget organizations and compiled using OMB prescribed inflation factors.

All activities in this plan are designated as "direct-funded." This approach has had the concurrence of DOE-FAO, -CH, and -SC. As a single purpose laboratory, the determination of whether an ADS is funded from program funds or an indirect pool had often been unclear. In many instances, this requirement caused the Laboratory to develop duplicate ADSs for Lab-wide programs. This had created confusion for plan reviewers and did not properly represent the integrated nature of ES&H activities at Fermilab.

Also, in prior year submissions, the cost estimates of the direct funded ADSs included a charge for overhead. As the ADSs in the current plan include a mixture of activities from divisions and sections that were previously termed "direct" funded and "indirect" funded, it was determined that the inclusion of an overhead charge was inappropriate.

Beginning in FY98, the funding source for Fermilab's waste management activities was transferred from EM to SC. Guidance in the Congressional Budget Request indicates that the total funding level will be \$2.21M for FY03 inclusive of overhead. This is about \$1.7M when overhead is removed. It was assumed that this level of funding will continue into future years, without inflationary increases, and is reflected in the Lab-wide fiscal year funding profile given above.

Cost estimates for the ES&H activities contained in the plan (\$M) are as follow:

FY	01	02	03	04	05	06	07	08
Core	10.8	10.9	11.0	11.3	11.6	11.9	12.2	12.5
Compliance& Improvement	1.1	1.1	1.1	1.0	1.0	1.0	0.9	0.9
Total	11.9	12.0	12.1	12.4	12.6	12.9	13.1	13.4

As part of the analysis of the plan, the Laboratory was instructed to determine the effect on ES&H activities of a 10% reduction in funding in the planning year. Fermilab assumed that a 10% reduction in operating funds would result in an equivalent reduction in the funds available for ES&H activities. If this were the case, and core activities were left intact, the amount of money available for compliance and improvement activities in FY01 would decrease from \$1.1M to \$1.0M. Under this scenario, Fermilab would probably try to complete as much of A97D0002 (Environmental remediation activities) and A93D0086 (Monitoring well network) as possible, since these are the ADSs with the highest risk scores. In order to do this, it would be necessary to divert some funds from core activities. Presumably, all core functional areas would be "taxed" at the same rate. Other active upgrade ADSs would need to be placed on hold. If the 10% carried into future years, it is likely that significant changes would be made in the Laboratory's goals. At that time, core activities would be evaluated based on changes in mission and any necessary adjustments would be made.

1.6 EO13148

Fermilab's pollution prevention goals for FY05 include a 90% reduction in Hazardous-routine (RCRA/TSCA/State) waste; a 25% decrease in low level radioactive waste; an 80% reduction in mixed waste; a 30% reduction in TRI chemicals; a 0% decrease in sanitary wastes; and a 45% increase in recycling activities (dependent on metals moratorium resolution). These reduction goals are as compared to the FY93 baseline for routine waste generation. They have been set assuming no significant changes in Fermilab facilities or operations. These activities are being pursued as part of the Lab's core ADS A97D0001.

2. **INFRASTRUCTURE ACTIVITIES**

Fermilab included three infrastructure ADSs in the past few revisions of this plan: funded activities (A98D0001), unfunded activities (A98D0008), and the Wilson Hall safety restoration project (A98D0009). In 09/00 Fermilab provided DOE with a Strategic Facility Plan (SFP) that identified infrastructure asset management requirements and actions necessary to ensure efficient and effective world-class scientific research facility well into the Twenty-First Century. Since the SFP provides detailed information regarding Fermilab's infrastructure, it was

felt that a reiteration of this information in the ES&H Plan would be a superfluous exercise. Dave Goodwin agreed and indicated that SC would not require Fermilab to submit infrastructure ADSs (E-mail 03/05/01). Accordingly, ADSs A98D0001, A98D0008, and A98D0009 have been assigned a status of VOID in the database.

3. PERFORMANCE MEASURES FOR THE EXECUTION YEAR

3.1 Objectives

For FY01, the contract between URA and DOE contains both ES&H performance measures and ES&H system assessment measures. Our overall rating depends primarily on the former, while the latter serves as an adjustment factor. The performance measures are the fraction of the remaining ISMV actions completed on time (ISM), the injury cost index (ICI), the lost workday case rate (LWCR), and the total effective dose equivalent (TEDE). The system assessment measures are environmental releases and waste minimization/recycling promotion.

Performance will be measured on an adjective scale as follows: outstanding, excellent, good, marginal, and unsatisfactory. Each rating is associated with an integer in order to combine the measures into a single rating. Four is associated with outstanding performance, three with excellent performance, and so on, down to zero for unsatisfactory performance. Measures will not all count the same toward the composite score: ISM contributes 35%, while ICI contributes 20%, LWCR 25%, and TEDE 20%.

3.1.1 Performance Measures

This fraction of ISM actions was defined as the percentage of a subset of integrated safety management system verification (ISMV) opportunities for improvement completed and implemented by due dates agreed upon by the DOE Fermi Area Office and Fermilab. Although no deficiencies were identified, there were 16 opportunities for improvement (OII), of which two were considered significant: clean up of old open ESHTK findings (MG1.3-1, MG2.3-1, FP1-1, EP1-2) and review of hazard analyses (MG1.4-1). Fourteen of the total OIIs had scheduled completion dates in FY00, with the remaining two scheduled for completion in FY01. Of the two significant OIIs, one each was due to be addressed in FY00 and FY01. All OIIs from the FY00 group were completed on time. If both FY01 tasks are completed on time, a rating of outstanding will be assigned. If only one task is completed on time, a rating of good will be assigned.

The ICI was developed by DOE and is frequently used within the Department complex. It is intended to be an indicator of the total (direct + indirect) costs associated with occupational injuries and illnesses, and is approximately equal to the cents lost per hour worked. The ICI was applied to Fermilab and its onsite subcontractors, considered as a single pool of workers. However, experimenters and tourists were excluded.

Injury cost index

$$= 100*[1,000,000*F + 500,000*T + 2,000*N + 1,000*DL + 400*DR] / HRS$$

HRS = number of person-hours worked (hours)

F = number of fatalities

T = number of permanent transfers or terminations

N = number of recordable cases

DL = number of lost work days

DR = number of restricted duty days

The ICI numerical limits to achieve adjective ratings of outstanding, excellent, good, poor, and unsatisfactory are < 8.1, 8.1-12.5, 12.6-18.0, 18.1-23.0, and > 23.0, respectively.

The LWCR is a traditional loss control index that is used by employers, regulators, and safety professionals throughout the world. Due to this broad use, it can readily be used to compare the occupational safety and health performance of a wide variety of employers. The LWCR was applied to Fermilab and its onsite subcontractors, considered as a single pool of workers. However, experimenters and tourists were excluded.

$$\text{LOST WORKDAY CASE RATE} = 200,000 (NL / HRS)$$

where

NL = number of cases with days away from work and/or days of restricted activity

HRS = number of person-hours worked (hours)

The LWCR numerical limits to achieve adjective ratings of outstanding, excellent, good, poor, and unsatisfactory are < 1.2, 1.2-1.6, 1.7-2.3, 2.4-2.7, and > 2.7, respectively.

The TEDE is the sum of deep dose equivalent received by individuals monitored at Fermilab and has units of person-rem. It widely used by employers, regulators, and radiation safety professionals throughout the world. Because of this wide application, it is often used to compare the radiation safety performance of a wide variety of employers. The TEDE was applied to all individuals who were issued personal radiation monitoring devices at Fermilab. This could include Lab employees, subcontractor employees, experimenters, and tourists. The TEDE numerical limits to achieve adjective ratings of outstanding, excellent, good, poor, and unsatisfactory are < 18, 18-22, 23-25, 26-28, and > 28 person-rem, respectively.

3.1.2 System Assessment Measures

The environmental releases assessment will include a review of the CY00 Hazardous Chemical Reporting, CY00 Toxic Release Inventory, □FY01 monitoring reports for environmental permits, and FY01 ORPS reports related to uncontrolled releases of hazardous substances. The goal of this FY01 year-end report is to examine the number and types of accidental, unexpected, and/or non-permitted releases/spills that exceed a regulatory reporting threshold for Local, State, or Federal regulatory authorities or that otherwise exceed permitted release levels.

The assessment of waste minimization and recycling promotion will examine whether the Lab is routinely incorporating P2/Wmin into work planning and experimental reviews. Each D/S will be expected to demonstrate its participation, with an emphasis on source reduction. Specific functions will include Return-on-Investment (ROI) determinations, demonstrated outreach, assignment of D/S responsibilities, training, completion of process waste assessments, and idea/proposal solicitation. Performance will be assessed against a detailed scale that measures management commitment and extent of implementation.

3.2 Commitments

There are no specific ES&H requirements in Fermilab's FY01 Financial Plan.

4. **SUMMARY OF PREVIOUS YEAR'S ES&H PERFORMANCE**

4.1 Performance Measures

For FY00, the contract between URA and DOE contained both ES&H performance measures and ES&H system assessment measures. Our overall rating depended primarily on the former, while the latter served as an adjustment factor. The performance measures were the fraction of ISMV actions completed on time (ISM), the injury cost index (ICI), the lost workday case rate (LWCR), and the total effective dose equivalent (TEDE). The system assessment measures were subcontractor total recordable cases, safety system actuation/degradation events, environmental releases, and the waste reduction index (WRI).

Performance was assessed according same scale as described in 3.1. above. Measures did not all count the same toward the composite score: ISM contributed 35%, while ICI contributed 20%, LWCR 25%, and TEDE 20%.

The overall combined value for FY00 was 3.35 which corresponds to a rating of excellent.

4.1.1 Performance Measures

This fraction of ISM actions was defined as the percentage of a subset of integrated safety management system verification (ISMV) opportunities for improvement completed and implemented by due dates agreed upon by the DOE Fermi Area Office and Fermilab. Although no deficiencies were identified, there were 16 opportunities for improvement (OII), of which two were considered significant: clean up of old open ESHTRK findings (MG1.3-1, MG2.3-1, FP1-1, EP1-2) and review of hazard analyses (MG1.4-1). Fourteen of the total OIIs had scheduled completion dates in FY00, with the remaining two scheduled for completion in FY01. Of the two significant OIIs, one each was due to be addressed in FY00 and FY01. All OIIs from the FY00 group were completed on time. This performance corresponded to a rating of outstanding.

The ICI was developed by DOE and is frequently used within the Department complex. It is intended to be an indicator of the total (direct + indirect) costs associated with occupational injuries and illnesses, and is approximately equal to the cents lost per hour worked. The ICI was applied to Fermilab and its onsite subcontractors, considered as a single pool of workers. However, experimenters and tourists were excluded.

Injury cost index

$$= 100*[1,000,000*F + 500,000*T + 2,000*N + 1,000*DL + 400*DR] / \text{HRS} = 11.6$$

HRS = number of person-hours worked = 4,567,752 hours

F = number of fatalities = 0

T = number of permanent transfers or terminations = 0

N = number of recordable cases = 77

DL = number of lost work days = 78

DR = number of restricted duty days = 732

In FY00 Fermilab experienced an ICI of 11.6 that corresponded to a rating of excellent.

The LWCR is a traditional loss control index that is used by employers, regulators, and safety professionals throughout the world. Due to this broad use, it can readily be used to compare the occupational safety and health performance of a wide variety of employers. The LWCR was applied to Fermilab and its onsite subcontractors, considered as a single pool of workers. However, experimenters and tourists were excluded.

$$\text{LOST WORKDAY CASE RATE} = 200,000 (\text{NL} / \text{HRS}) = 1.6$$

where

NL = # of cases with days away from work and/or days of restricted activity = 36

HRS = number of person-hours worked = 4,567,752 hours

The lost workday case rate for FY00 was 1.6. This value corresponds to a rating of excellent.

The TEDE is the sum of deep dose equivalent received by individuals monitored at Fermilab and has units of person-rem. It is widely used by employers, regulators, and radiation safety professionals throughout the world. Because of this wide application, it is often used to compare the radiation safety performance of a wide variety of employers. The TEDE was applied to all individuals who were issued personal radiation monitoring devices at Fermilab. This could include Lab employees, subcontractor employees, experimenters, and tourists. Due to the time required for processing the doses, this measure will cover the 12-month period from 6/1/99 through 6/30/00. In FYQ99.4 through 00.3, Fermilab experienced TEDEs of 2.47, 3.56, 4.82, and 2.36 person-rem, for a total of 13.21 person-rem. These results are well within the range of the excellent rating. It is important to note that the results for FYQ00.1 include a single exposure of 1.24 rem assigned to the permanent record of an individual (see

previous report) who was unlikely to have actually received that exposure. If one does not include this 1.24 person-rem in the total, an adjectival rating of outstanding would have been achieved.

4.1.2 System Assessment Measures

Compared to the previous three years, the subcontractor total recordable case rate and LWCR for FY00 decreased by 10% and 22%, respectively.

In FY00 there were eleven occurrence reports filed with the DOE. Only one (CH-BA-FNAL-FERMILAB-2000-0008) involved a safety significant structure, system or component. On 09/01/00 portable shielding was removed from the top of the large shield door at CDF. This was done in preparation for the shutdown scheduled for the CDF roll-in, following the end of Tevatron beam operations. Removal was initiated prior to assurance of beam disablement from the Main Control Room. Since no beam was present, it is improbable that any radiation exposure was received. Also, no regulatory violations occurred since involved personnel had current radiation worker training and were wearing proper dosimetry. This incident was attributed to the lack of adequate written procedures and communication between the Beams and Particle Physics Divisions.

A total of six qualifying environmental releases were reported during FY00. One involved high pH at outfall 001 (Ferry Creek) in 04/00. It was subsequently determined that this fluctuation in pH was due to site soil characteristics and not Lab activities. The remaining five excursions occurred at the 006-NuMI Target Shaft outfall in association with construction activities. In this case, both daily and 30-day average limits for total suspended solids were exceeded in 04/00 and 09/00. Additionally, the pH from this outfall was found to be a problem in 06/00, presumably due to *shotcreting* activities in the tunnel.

The waste reduction index (WRI) was developed by Fermilab to represent progress made in reducing the volumes of wastes leaving the site for disposal. It includes the volume of regulated chemical wastes (RCW) shipped offsite for disposal, the volume of low-level radioactive wastes (LLRW) collected onsite, and the volume of other solid wastes (OSW) measured as dumpster capacity. However, wastes from major clean up projects and liquid sanitary wastes are excluded.

WASTE REDUCTION INDEX = $[0.27 * P(\text{RCW}) + 0.12 * P(\text{LLRW}) + 0.61 * P(\text{OSW})] \%$

where

$P(\text{RCW}) = \text{percent reduction in RCW} = 100 [1 - V_c(\text{RCW})/V_a(\text{RCW})]\%$

$P(\text{LLRW}) = \text{percent reduction in LLRW} = 100 [1 - V_c(\text{LLRW})/V_a(\text{LLRW})]\%$

$P(\text{OSW}) = \text{percent reduction in OSW} = 100 [1 - V_c(\text{OSW})/V_a(\text{OSW})]\%$

$V_c(\text{RCW}) = \text{current-year volume of RCW (m}^3\text{)}$

$V_c(\text{LLRW}) = \text{current-year volume of LLRW (m}^3\text{)}$

$V_c(\text{OSW}) = \text{current-year volume of OSW (m}^3\text{)}$

$V_a(\text{RCW}) = \text{prior three-year average volume of RCW (m}^3\text{)}$

$V_a(\text{LLRW}) = \text{prior three-year average volume of LLRW (m}^3\text{)}$

$V_a(\text{OSW}) = \text{prior three-year average volume of OSW (m}^3\text{)}$

The WRI for FY00 was -11.5%, placing it in the unsatisfactory range. The trends for both RCW and LLRW were slightly negative, suggesting that these levels did not increase. However, that for OSW is clearly positive. FESS is investigating this phenomenon to determine whether anything can be done to reverse it. In particular, the impact of the recent expansion of paper and cardboard recycling is expected to be positive as more and more of these materials are diverted from the waste stream.

4.2. Budget Plan and Risk Management Summary

Out of the nine ES&H upgrade ADSs included in last year's plan, two are complete, four are on (or ahead of) schedule, and only one is delayed.

4.2.1 Completed ADSs

A93D0084 Accelerator Footprint fire protection upgrades

A96D0002 FCC fire protection upgrades

Both of the completed ADSs were fire protection projects. The Accelerator upgrade (A93D0084) was completed according to schedule and the FCC project (A96D0002) was completed one year ahead of schedule. The latter included additional funding from the Directorate on the single remaining life safety issue.

4.2.2 ADSs on Schedule

A93D0086	Monitoring well network	On / Ahead ~1 yr
A98D0007	Stored material, ID, evaluation & clean out	On / Ahead ~1 yr
AA0D0002	Shield block storage shed	On / ~Ahead
A97D0002	Environmental remediation activities	On schedule
A93D0004	Beam enclosure emergency lighting	On schedule
A94D0019	Beams Division electrical compliance	On schedule

Programmatic scheduling opportunities allowed rapid and efficient progress on the well network project (A93D0086) and environmental remediation activities (A97D0002). Consequently, it was possible to initiate the cleaning out of stored materials (A98D0007) one year ahead of schedule. Progress on the shield block storage shed project (AA0D0002) is currently ahead of schedule. The two long-term Beams Division ADSs (A93D0004 and A94D0019) are continuing to show slow progress. In FY01, the Lab will pursue funding to accelerate these projects via the UIP program.

4.2.3 ADSs Behind Schedule

A98D0002	Personnel access safety upgrades	Delay ~2 yr
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This project has turned out to have a larger scope than originally anticipated. Additional safety and regulatory analysis by ES&H professionals is required prior to development of a detailed remediation plan. The delay is deemed acceptable since most of the hatches already have some degree of fall protection, access is typically infrequent, and the hazard is well understood by potentially exposed workers.

4.3 Cost Data

ES&H cost data are not captured by functional area since this information is not useful to Fermilab management. Below are the Lab's FY00 ES&H costs listed by division/section. Total costs turned out to be only 0.5% greater than those portrayed in our FY01 ES&H Management Plan. All expenses associated with infrastructure ADSs, including ADS A98D0009 (Infrastructure - Wilson Hall safety improvements), have been excluded from this table.

DIVISION / SECTION	FY00 plan costs (\$K)	FY00 actual costs (\$K)
Beams Division	3,179	3,188
Business Services Section	0	0
Computing Division	72	38
Directorate	66	6
Environment Safety & Health Section	6,405	6,843

Facilities Engineering Services Section	811	499
Laboratory Services Section	20	0
Particle Physics Division	414	470
Technical Division	347	414
TOTAL	11,315	11,458

4.4. Description of How Risks were Actually Reduced

The two ADSs completed in FY00 account 19% of the risk points contained in last year's plan. For comparison, the delayed ADS accounts for 8%. In addition, half of the remaining projects are ahead of schedule. This demonstrates a net reduction in the risk associated with the activities included in Fermilab's ES&H management plan.

With the completion of ADSs A93D0084 (Accelerator Footprint fire protection upgrades) and A96D0002 (FCC fire protection upgrades), no major fire protection upgrades remain in the plan. The final stages of both involved life safety issues: installation of alternate exits from structures.

The installation of wells (ADS A93D0086) is nearly complete. This project has resulted in an improved understanding of the geology and hydrogeology of the site. This is useful in identifying potential groundwater contamination problems and in planning the installation of future accelerator facilities. In addition, routine sampling from the wells will effectively monitor that contamination is not unexpectedly migrating toward the aquifer.

Substantial progress was made in cleaning up PCB contaminated soil adjacent to Main Ring Service Buildings (ADS A97D0002). This has gone a long way toward eliminating a potential water contamination source as well as a longstanding regulatory issue.

As noted above, it was possible to initiate the cleaning out of stored materials (A98D0007) one year ahead of schedule. This project is allowing Fermilab to clean out currently unused areas for alternate applications. In some cases, there will be an immediate return-on-investment by creating onsite storage space for items presently stored offsite in rented facilities.